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AUTHOR: Nikitina, T. N.

TITLE: Investigation of thin permalloy films in weak remagnetizing fields

PERIODICAL: Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, no. 6, 1962, 59 - 62.

TEXT: The times of remagnetization of thin permalloy films and the amplitudes of the signals of a pulse generator occurring in such remagnetizations were measured with $H_{rev} \approx H_c$ where H_{rev} is the field strength causing remagnetization and H_c is the coercive force. With $H_{rev} < H_c$ the magnetization of the film is reversed within 10 - 12 μ sec, and only signals of ≤ 1 mv of reversible processes are observed. These processes are independent of the film thickness and are caused by slight displacements in the region of the nuclei of the new phase. The amplitudes and the length of the processes due to high H_{rev} remain unchanged when H_{rev} in-

Card 1/2

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creases. Irreversible processes appear when H_{rev} increases from 0.3 to 0.4 oe. On a further increase ($H_{rev} \rightarrow H_c$) the amplitude of the signal increases slowly, its length τ increases rapidly. As H_{rev} approaches H_c , wedge-shaped nuclei of the old phase start to grow intensely (according to observations with the Kerr effect), the Barkhausen effect appears and the walls of the arising domains move until the entire sample is covered with the new phase. The thicker the film the lower the field strength H_{rev} required for the remagnetization of the sample by shift of the domain walls and the greater the field strength H_{rev} required for the transition to Umklapp processes. There are 2 figures.

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Card 2/2